# Upgrade Secondary ROMmon CLI

The Upgrade Secondary ROM monitor (ROMmon) CLI feature allows users to upgrade to a second ROMmon image on a Cisco 7200 VXR router using the NPE-G1 network processing engine and on a Cisco 7301 router. The upgradable second ROMmon image allows the field to use CLI commands to correct ROMmon software problems.

**Feature History for Upgrade Secondary ROMmon CLI Feature**

| Release | Modification |
|---|---|
| 12.0(28)S | This feature was introduced on the Cisco 7200 VXR router. |
| 12.3(8)T | This feature was integrated into the T train and supports the Cisco 7200 VXR router and the Cisco 7301 router. |
| 12.3(9) | This feature was integrated into the Mainline train and supports the Cisco 7200 VXR router and the Cisco 7301 router. |

### Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at http://www.cisco.com/go/fn. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

## Contents




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# Prerequisites for Upgrade Secondary ROMmom CLI

- You must have one of the following ROMmon versions loaded in erasable programmable read-only memory (EPROM):
  - ROMmon version 12.3(4r)T1 for the Cisco 7200 VXR router with NPE-G1 installed.
  - ROMmon version 12.3(4r)T2 for the Cisco 7301 router.
- The Cisco 7200 VXR router must have an NPE-G1 network processing engine installed.

# Information About Upgrade Secondary ROMmom CLI

The Cisco 7200 VXR router and the Cisco 7301 router have two ROMmon images: the original image shipped with your system is a ReadOnly image that cannot be erased or altered in the field; the second image is read-and-write upgradable by the field. The upgradable second image provides field personnel and other users with the capability to correct ROMmon software problems using Upgrade Secondary ROMmon CLI commands. This ability eliminates or reduces the need to physically replace the hardware in order to get a new image.

The Upgrade Secondary ROMmon CLI commands allow you to:

- Load the Upgrade secondary ROMmon image.
- Configure your system to point to the Upgrade ROMmon image at the next reboot of your router when you are in either the Cisco IOS or the ROMmon state.

  At bootup, the system first executes the ReadOnly ROMmon image and then, if configured, switches to the Upgrade ROMmon image. When you are reloading the router with the upgradable image, you will see appropriate warning messages.
- Select the ReadOnly ROMmon image for execution on the next reboot.
- Display both ROMmon image versions and which ROMmon image is currently selected when you are in either the Cisco IOS or the ROMmon state.

**Note** If the Upgrade ROMmon image fails to boot, the router will mark this ROMmon image as invalid and revert to the ReadOnly image.

The first time a new ROMmon image is loaded, you must allow the system to boot ROMmon before doing any additional resets or power cycling. If the ROMmon-loading process is interrupted, the system interprets this as a bootup failure of the new ROMmon image and reverts to the ReadOnly image.

# How to Use the Upgrade Secondary ROMmom CLI Commands

This section contains the following tasks that use the Upgrade secondary ROMmon CLI commands:

- Loading the Upgrade Secondary ROMmom Image (optional)
- Selecting the ReadOnly ROMmom Image for Execution (optional)
- Verifying the ROMmom Image (optional)

## Loading the Upgrade Secondary ROMmom Image

This section contains the procedure to load the Upgrade ROMmon image in order to fix any software problems in the ReadOnly ROMmon image.

### Prerequisites

- You have the correct ROMmon version loaded in EPROM. Refer to Prerequisites for Upgrade Secondary ROMmom CLI, page 2.

#### SUMMARY STEPS

1. **enable**
2. For the Cisco 7200 VXR router using the NPE-G1:

   ```
   upgrade rom-monitor file {bootflash [file-path] | disk0 [file-path] | disk1
   [file-path] | disk2 [file-path] | flash [file-path] | ftp [file-path] | slot0
   [file-path] | slot1 [file-path] | tftp [file-path]}
   ```

   For the Cisco 7301 router:

   ```
   upgrade rom-monitor file {flash [file-path] | ftp [file-path] | disk0 [file-path] |
   tftp [file-path]}
   ```
3. **end**

### DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br><br>**Example:**<br>`Router> enable` | Enables privileged EXEC mode.<br>• Enter your password if prompted. |
| **Step 2** | For the Cisco 7200 VXR using NPE-G1:<br>**upgrade rom-monitor file** {**bootflash** [*file-path*] \| **disk0** [*file-path*] \| **disk1** [*file-path*] \| **disk2** [*file-path*] \| **flash** [*file-path*] \| **ftp** [*file-path*] \| **slot0** [*file-path*] \| **slot1** [*file-path*] \| **tftp** [*file-path*]}<br><br>**Example:**<br>`Router# upgrade rom-monitor file tftp: //00.0.00.0/biff/C7200_RMFUR.srec`<br><br>For the Cisco 7301:<br>**upgrade rom-monitor file** {**flash** [*file-path*] \| **ftp** [*file-path*] \| **disk0** [*file-path*] \| **tftp** [*file-path*]}<br><br>**Example:**<br>`Router# upgrade rom-monitor file disk0:C7301_RMFUR.srec` | Loads the Upgrade ROMmon image from a specified source directory filename.<br>• In the Cisco 7200 VXR example, you are loading the Upgrade ROMmon image from a TFTP server using a TFTP path name.<br>• In the Cisco 7301 example, you are loading the Upgrade ROMmon image from the disk 0 device on the router chassis. |

# Selecting the ReadOnly ROMmom Image for Execution

This section contains the procedure to select the ReadOnly ROMmon image for execution on the next reboot. Use this procedure if you want to replace the Upgrade ROMmon image, which has been selected, with the ReadOnly ROMmon image. The ReadOnly ROMmon image will then be booted on the next reload of a Cisco 7200 VXR or Cisco 7301 router.

## Prerequisites

- You have the correct ROMmon version loaded in EPROM. Refer to Prerequisites for Upgrade Secondary ROMmom CLI, page 2.
- You have already installed the Upgrade ROMmon image.

### SUMMARY STEPS

1. **enable**
2. **upgrade rom-monitor preference** [**readonly** | **upgrade**]

**DETAILED STEPS**

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | `enable`<br><br>**Example:**<br>`Router> enable` | Enables Privileged EXEC mode.<br>• Enter your password if prompted. |
| **Step 2** | `upgrade rom-monitor preference [readonly \| upgrade]`<br><br>**Example:**<br>`Router# upgrade rom-monitor preference readonly` | When in Cisco IOS, this command in Privileged EXEC mode selects either the ReadOnly or Upgrade ROMmon image as the image to be booted on the next reload.<br>• In this example, you are selecting the ReadOnly ROMmon image. One reason could be that the Upgrade image has features or side effects you do not like. |

# Verifying the ROMmom Image

To verify whether the Upgrade secondary ROMmon or the ReadOnly ROMmon image has been installed, perform the following steps.

**SUMMARY STEPS**

1. **enable**
2. **show rom-monitor**

**DETAILED STEPS**

**Step 1** **enable**

Enables privileged EXEC mode. Enter your password if prompted.

```
Router> enable
```

**Step 2** **show rom-monitor**

When in Cisco IOS, this command in privileged EXEC mode shows both the ReadOnly and the Upgrade ROMmon image versions, as well as which ROMmon image is running.

```
Router# show rom-monitor
```

# Configuration Examples for Upgrade Secondary ROMmom CLI

This section contains the following examples:



## Loading the Upgrade ROMmon Image: Examples

The following example of a Cisco 7200 VXR using an I/O controller loads the Upgrade ROMmon image from a disk 1 filename:

```
Router# upgrade rom-monitor file disk1:C7200_NPEG1_RMFUR.srec.123-4r.T1
This command will reload the router. Continue? [yes/no]:yes
ROMMON image upgrade in progress.

Erasing boot flash eeeeeeeeeeeeeeeee
Programming boot flash pppppp
Now Reloading via hard watchdog timeout
```

The following example is of a Cisco 7301 router loading the Upgrade ROMmon image from a specified TFTP file location:

```
Router# upgrade rom-monitor file tftp://00.0.00.0/biff/C7301_RMFUR.srec
Loading biff/C7301_RMFUR.srec from 00.0.00.0 (via GigabitEthernet0/1):
 !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 392348 bytes]

This command will reload the router. Continue? [yes/no]:yes
ROMMON image upgrade in progress.
Erasing boot flash eeeeeeeeeeeeeeeee
Programming boot flash ppppp
Now Reloading via hard watchdog timeout

Unexpected exception, CP
System Bootstrap, Version 12.2(20031011:151758) [biff]
Copyright (c) 2004 by cisco Systems, Inc.

 Running new upgrade for first time

System Bootstrap, Version 12.2(20031011:151758) [biff]
Copyright (c) 2004 by cisco Systems, Inc.

ROM:Rebooted by watchdog hard reset
C7301 platform with 1048576 Kbytes of main memory


Upgrade ROMMON initialized
rommon 1 >
```

# Selecting the ReadOnly ROMmon Image: Examples

The following example applicable to both the Cisco 7200 VXR and Cisco 7301 routers shows how to select the ReadOnly ROMmon image to be booted on the next reload of the router when you are in Cisco IOS:

```
Router# upgrade rom-monitor preference readonly
You are about to mark ReadOnly region of ROMMON for the highest boot preference.
Proceed? [confirm]
Done! Router must be reloaded for this to take effect.
```

The following example applicable to both the Cisco 7200 VXR and Cisco 7301 routers shows how to select the ReadOnly ROMmon image to be booted on the next reload of the router when you are already in ROMmon:

```
rommon 2 > rommon-pref readonly
```

# Verifying the ROMmon Image: Examples

The following example, applicable to both the Cisco 7200 VXR and Cisco 7301 routers, uses the **show rom-monitor** command in Cisco IOS to display both ROMmon images and to verify that the Upgrade ROMmon image is running:

```
Router# show rom-monitor
ReadOnly ROMMON version:

System Bootstrap, Version 12.2(20031011:151758)
Copyright (c) 2004 by Cisco Systems, Inc.

Upgrade ROMMON version:

System Bootstrap, Version 12.2(20031011:151758)
Copyright (c) 2004 by Cisco Systems, Inc.

Currently running ROMMON from Upgrade region
ROMMON from Upgrade region is selected for next boot
```

The following example, applicable to both the Cisco 7200 VXR and Cisco 7301 routers, uses the **showmon** command in ROMmon to display both ROMmon images and to verify that the Upgrade ROMmon image is running:

```
rommon 1 > showmon

ReadOnly ROMMON version is:
System Bootstrap, Version 12.2(20031011:151758) [biff]
Copyright (c) 2004 by Cisco Systems, Inc.


Upgrade ROMMON version is:
System Bootstrap, Version 12.2(20031011:151758) [biff]
Copyright (c) 2004 by Cisco Systems, Inc.

Upgrade ROMMON currently running
Upgrade ROMMON is selected for next boot
rommon 2 >
```

# Additional References

The following sections provide references related to the Upgrade Secondary ROMmon CLI feature.

## Related Documents

| Related Topic | Document Title |
|---|---|
| NPE-G1 Installation and Configuration | "Upgrading ROMmon" section of the "NPE-G1 Installation and Configuration Information" chapter of the *Network Processing Engine and Network Services Engine Installation and Configuration* guide. |
| Upgrading ROMmon on the Cisco 7301 | "Starting and Configuring the Router" chapter of the *Cisco 7301 Installation and Configuration Guide*. |

## MIBs

| MIBs | MIBs Link |
|---|---|
| No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature. | To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:<br>http://www.cisco.com/go/mibs |

## Technical Assistance

| Description | Link |
|---|---|
| Technical Assistance Center (TAC) home page, containing 30,000 pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content. | http://www.cisco.com/public/support/tac/home.shtml |

# Command Reference

This section documents only new and modified commands.

**New Commands**

- **rommon-pref**
- **showmon**
- **show rom-monitor**
- **upgrade rom-monitor file**
- **upgrade rom-monitor preference**

# rommon-pref

To select a ReadOnly or Upgrade ROMmon image to be booted on the next reload of a Cisco 7200 VXR router or Cisco 7301 router when you are in ROMmon, use the **rommon-pref** command in ROMmon mode.

**rommon-pref** [**readonly** | **upgrade**]

## Syntax Description

| | |
|---|---|
| **readonly** | Selects the ReadOnly ROMmon image to be booted on the next reload. |
| **upgrade** | Selects the Upgrade, second ROMmon image to be booted on the next reload. |

## Defaults

No default behavior or values

## Command Modes

ROMmon

## Command History

| Release | Modification |
|---|---|
| 12.0(28)S | This command was introduced on the Cisco 7200 VXR router. It was introduced in ROMmon version 12.3(4r)T1 for the Cisco 7200 VXR router. |
| 12.3(8)T | This command was integrated into Cisco IOS Release 12.3(8)T and supported on the Cisco 7200 VXR router and Cisco 7301 router. It was introduced in ROMmon version 12.3(4r)T2 for the Cisco 7301 router. |
| 12.3(9) | This command was integrated into Cisco IOS Release 12.3(9) and supported on the Cisco 7200 VXR router and Cisco 7301 router. |

## Usage Guidelines

You might select the ReadOnly ROMmon image to be booted on the next reload because the Upgrade image has features or side effects you do not like.

When you are in ROMmon, there is no descriptive output to inform you whether the ReadOnly ROMmon image was reloaded. To confirm the reload, use the **showmon** command after entering the **rommon-pref readonly** command.

Use this command when you are in ROMmon mode. Use the **upgrade rom-monitor preference** command when you are in Cisco IOS.

## Examples

The following example, applicable to both the Cisco 7200 VXR and Cisco 7301 routers, shows how to select the ReadOnly ROMmon image to be booted on the next reload of the router when you are already in ROMmon mode:

```
rommon 2 > rommon-pref readonly
```

**Related Commands**

| Command | Description |
|---|---|
| **showmon** | Shows both the ReadOnly and the Upgrade ROMmon image versions when you are in ROMmon mode, as well as which ROMmon image is running. |

# showmon

To show both the ReadOnly and the Upgrade ROMmon image versions when you are in ROMmon mode, as well as which ROMmon image is running on the Cisco 7200 VXR or Cisco 7301 router, use the **showmon** command in ROMmon mode.

**showmon**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values

## Command Modes

ROMmon

## Command History

| Release | Modification |
|---|---|
| 12.0(28)S | This command was introduced on the Cisco 7200 VXR router. It was introduced in ROMmon version 12.3(4r)T1 for the Cisco 7200 VXR router. |
| 12.3(8)T | This command was integrated into Cisco IOS Release 12.3(8)T and supported on the Cisco 7200 VXR router and Cisco 7301 router. It was introduced in ROMmon version 12.3(4r)T2 for the Cisco 7301 router. |
| 12.3(9) | This command was integrated into Cisco IOS Release 12.3(9) and supported on the Cisco 7200 VXR router and Cisco 7301 router. |

## Usage Guidelines

Use the **showmon** command when you are in ROMmon mode. Use the **show rom-monitor** command when you are in Cisco IOS.

## Examples

The following example, applicable to both the Cisco 7200 VXR and Cisco 7301 routers, uses the **showmon** command in ROMmon to display both ROMmon images and to verify that the Upgrade ROMmon image is running:

```
rommon 1 > showmon

ReadOnly ROMMON version is:
System Bootstrap, Version 12.2(20031011:151758) [biff]
Copyright (c) 2004 by Cisco Systems, Inc.


Upgrade ROMMON version is:
System Bootstrap, Version 12.2(20031011:151758) [biff]
Copyright (c) 2004 by Cisco Systems, Inc.

Upgrade ROMMON currently running
Upgrade ROMMON is selected for next boot
rommon 2 >
```

**Related Commands**

| Command | Description |
|---|---|
| **rommon-pref** | Selects a ReadOnly or Upgrade ROMmon image to be booted on the next reload of a Cisco 7200 VXR or Cisco 7301 when you are in ROMmon. |

# show rom-monitor

To show both the ReadOnly and the Upgrade ROMmon image versions, as well as which ROMmon image is running on the Cisco 7200 VXR or Cisco 7301 router, use the **show rom-monitor** command in privileged EXEC mode.

**show rom-monitor**

## Syntax Description

This command has no arguments or keywords.

## Defaults

No default behavior or values

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| 12.0(28)S | This command was introduced on the Cisco 7200 VXR router. |
| 12.3(8)T | This command was integrated into Cisco IOS Release 12.3(8)T and supported on the Cisco 7200 VXR router and Cisco 7301 router. |
| 12.3(9) | This command was integrated into Cisco IOS Release 12.3(9) and supported on the Cisco 7200 VXR router and Cisco 7301 router. |

## Usage Guidelines

Use the **show rom-monitor** command when you are in Cisco IOS. Use the **showmon** command when you are in ROMmon mode.

## Examples

The following example, applicable to both the Cisco 7200 VXR and Cisco 7301 routers, uses the **show rom-monitor** command in Cisco IOS to display both ROMmon images and to verify that the Upgrade ROMmon image is running:

```
Router> show rom-monitor
ReadOnly ROMMON version:

System Bootstrap, Version 12.2(20031011:151758)
Copyright (c) 2004 by Cisco Systems, Inc.

Upgrade ROMMON version:

System Bootstrap, Version 12.2(20031011:151758)
Copyright (c) 2004 by Cisco Systems, Inc.

Currently running ROMMON from Upgrade region
ROMMON from Upgrade region is selected for next boot
```

**Related Commands**

| Command | Description |
|---|---|
| **showmon** | Shows both the ReadOnly and the Upgrade ROMmon image versions when you are in ROMmon mode, as well as which ROMmon image is running. |

# upgrade rom-monitor file

To reload the Upgrade ROMmon image on a Cisco 7200 VXR or Cisco 7301 router, use the **upgrade rom-monitor file** command in Privileged EXEC mode.

For the Cisco 7200 VXR router using the NPE-G1, the syntax is:

**upgrade rom-monitor file** {**bootflash** [*file-path*] | **disk0** [*file-path*] | **disk1** [*file-path*] | **disk2** [*file-path*] | **flash** [*file-path*] | **ftp** [*file-path*] | **slot0** [*file-path*] | **slot1** [*file-path*] | **tftp** [*file-path*]}

For the Cisco 7301 router, the syntax is:

**upgrade rom-monitor file** {**flash** [*file-path*] | **ftp** [*file-path*] | **disk0** [*file-path*] | **tftp** [*file-path*]}

## Syntax Description

| | |
|---|---|
| *file-path* | Directory path name or filename where the Upgrade ROMmon image is located. |
| **bootflash** | Filename location of Upgrade ROMmon image in boot flash memory. |
| **disk0** | Disk 0 is only present on a Cisco 7200 VXR that has an I/O controller and is always present on the Cisco 7301 router. The filename location of the Upgrade ROMmon image in disk 0 of the router chassis. |
| **disk1** | Disk 1 is only present on a Cisco 7200 VXR that has an I/O controller. The filename location of the Upgrade ROMmon image in disk 1 of the router chassis. |
| **disk2** | Disk 2 is always present on a Cisco 7200 VXR. The filename location of the Upgrade ROMmon image in disk 2 of the router chassis. |
| **flash** | Filename location of Upgrade ROMmon image in Flash memory. |
| **ftp** | Filename location of the Upgrade ROMmon image using File Transfer Protocol (FTP). |
| **slot0, slot1** | Slot 0 and slot 1 are only present on a Cisco 7200 VXR that has an I/O controller. The filename location of the Upgrade ROMmon image in slot 0 and slot 1 of the router chassis. |
| **tftp** | Filename location of the Upgrade ROMmon image on the TFTP server. |

## Defaults

No default behavior or values

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| 12.0(28)S | This command was introduced on the Cisco 7200 VXR router. |
| 12.3(8)T | This command was integrated into Cisco IOS Release 12.3(8)T and supported on the Cisco 7200 VXR router and Cisco 7301 router. |
| 12.3(9) | This command was integrated into Cisco IOS Release 12.3(9) and supported on the Cisco 7200 VXR router and Cisco 7301 router. |

## Usage Guidelines

A Cisco 7200 VXR that has an I/O controller card installed has the following additional devices on its chassis: disk 0, disk 1, slot 0, and slot 1.

## Examples

The following example of a Cisco 7200 VXR using an I/O controller loads the Upgrade ROMmon image from a disk 1 filename:

```
Router# upgrade rom-monitor file disk1:C7200_NPEG1_RMFUR.srec.123-4r.T1
This command will reload the router. Continue? [yes/no]:yes
ROMMON image upgrade in progress.

Erasing boot flash eeeeeeeeeeeeeeeee
Programming boot flash pppppp
Now Reloading via hard watchdog timeout
```

The following example on a Cisco 7301 router loads the Upgrade ROMmon image from a specified TFTP file location:

```
Router# upgrade rom-monitor file tftp://00.0.00.0/biff/C7301_RMFUR.srec
Loading biff/C7301_RMFUR.srec from 00.0.00.0 (via GigabitEthernet0/1):
 !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
[OK - 392348 bytes]

This command will reload the router. Continue? [yes/no]:yes
ROMMON image upgrade in progress.
Erasing boot flash eeeeeeeeeeeeeeeee
Programming boot flash ppppp
Now Reloading via hard watchdog timeout

Unexpected exception, CP
System Bootstrap, Version 12.2(20031011:151758) [biff]
Copyright (c) 2004 by cisco Systems, Inc.

 Running new upgrade for first time

System Bootstrap, Version 12.2(20031011:151758) [biff]
Copyright (c) 2004 by cisco Systems, Inc.

ROM:Rebooted by watchdog hard reset
C7301 platform with 1048576 Kbytes of main memory


Upgrade ROMMON initialized
rommon 1 >
```

# upgrade rom-monitor preference

To select a ReadOnly or Upgrade ROMmon image to be booted on the next reload of a Cisco 7200 VXR or Cisco 7301router, use the **upgrade rom-monitor preference** command in privileged EXEC mode.

**upgrade rom-monitor preference** [**readonly** | **upgrade**]

## Syntax Description

| | |
|---|---|
| **readonly** | Selects the ReadOnly ROMmon image to be booted on the next reload. |
| **upgrade** | Selects the Upgrade second ROMmon image to be booted on the next reload. |

## Defaults

No default behavior or values

## Command Modes

Privileged EXEC

## Command History

| Release | Modification |
|---|---|
| 12.0(28)S | This command was introduced on the Cisco 7200 VXR router. |
| 12.3(8)T | This command was integrated into Cisco IOS Release 12.3(8)T and supported on the Cisco 7200 VXR router and Cisco 7301 router. |
| 12.3(9) | This command was integrated into Cisco IOS Release 12.3(9) and supported on the Cisco 7200 VXR router and Cisco 7301 router. |

## Usage Guidelines

After running the **upgrade rom-monitor preference** command, you must reload the router for the selected ROMmon image to take effect.

Use the **rommon-pref** command when you are in ROMmon mode.

## Examples

The following example applicable to both the Cisco 7200 VXR and Cisco 7301 routers selects the ReadOnly ROMmon image to be booted on the next reload of the router:

```
Router# upgrade rom-monitor preference readonly
You are about to mark ReadOnly region of ROMMON for the highest boot preference.
Proceed? [confirm]
Done! Router must be reloaded for this to take effect.
```

## Related Commands

| Command | Description |
|---|---|
| **rommon-pref** | Selects a ReadOnly or Upgrade ROMmon image to be booted on the next reload when you are in ROMmon mode. |